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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,933	02/10/2004	Bo Hansen	58614 (71432)	2102

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EXAMINER	
SHIN, DANA H	

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,933	HANSEN ET AL.	
	Examiner	Art Unit	
	Dana Shin	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4-9,16-54,64-74 and 76-105* is/are pending in the application.

4a) Of the above claim(s) *64-74 and 76-90* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,4-9,16-54,64-74 and 76-105* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :7-12-04,11-11-04,6-16-05,8-29-05.

DETAILED ACTION

Response to Applicant's Election

Applicant's election with traverse of claims 1-54 (reciting SEQ ID NO:77) in the reply filed on March 21, 2006 is acknowledged. The traversal is on the ground(s) that SEQ ID NOs: 8 and 77-79 have same nucleic acid sequence but are different in the presence and number of nucleotide analogs and the type of linkage used. This argument is found persuasive and accordingly, the restriction requirement among SEQ ID NOs: 8 and 77-79 is withdrawn.

Claims 55-90 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected groups, there being no allowable generic or linking claim.

Status of Claims

Applicants have cancelled claims 1, 3, 10-13, 17-46, 55-63, and 75 and added new claims 91-105 in the reply filed on March 21, 2006. The new claims are considered to read on the elected invention. Accordingly, claims 2, 4-9, 16-46, 47-54, 64-74, 76-105 are pending; claims 64-74 and 76-90 are withdrawn; and claims 2, 4-9, 14-16, 47-54, and 91-105 are currently under examination on the merits.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on July 12, 2004 is considered; however, it is noted that the non-patent literature documents listed in the IDS lack appropriate titles. Correction is required.

Specification

The disclosure is objected to because of the following informalities:

1) Applicant is reminded of the proper language and format for an abstract of the disclosure. The abstract should be in narrative form, and the form and legal phraseology often used in patent claims, such as "thereof" should be avoided. Appropriate correction is required.

2) Example 12 on page 55 contains numerous squares, which appear to be meant to represent letters. Appropriate correction is required.

3) Page 34 contains only two lines of disclosure and a large blank area. It is unclear whether this page is intentionally left blank or some contents of the disclosure are removed because the disclosure continues on the next page. Clarification is required.

4) Page 22 at line 7, page 23 at line 9, and page 35 at line 23 contain numerous squares, which appear to be meant to represent "β". Appropriate correction is required.

Claim Objections

Claims 53-54 are objected to because of the following grammatical errors:

Claim 53, line 2 recites "which is constitutes a pro-drug". Deletion of either "is" or "constitutes" is required.

Claim 54, line 2 recites "an antiinflamatory compounds and/or antiviral compounds".

The article "an" conflicts with the plural noun form of "compounds". Further, there is a typographical error in the word "antiinflamtory". It should be "anti-inflammatory" with two "m"s. Appropriate correction is required.

Claims 51-52 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 48. When two claims in an application are duplicates or else are so close in content that they

both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 48-54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are specifically drawn to a "pharmaceutical composition" comprising an antisense compound comprising SEQ ID NO:8 further comprising nucleotide analogues. The preamble language "pharmaceutical" reflects that the antisense compound comprising SEQ ID NO:8 must confer pharmaceutical or therapeutic effects *in vivo*.

The factors to be considered in determining whether undue experimentation is required are summarized *In re Wands*, 858 F.2d 731,737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). The Court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue', not 'experimentation'." (Wands, 8 USPQ2d 1404). There are many factors to be considered when determining whether there is sufficient

evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include: (A) The breadth of the claims; (B) The nature of the invention; (C) The state of the prior art; (D) The level of one of ordinary skill; (E) The level of predictability in the art; (F) The amount of direction provided by the inventor; (G) The existence of working examples; and (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

The instant specification provides working examples demonstrating *in vitro* inhibitory effects of the antisense compound comprising SEQ ID NO:78 (identified as CUR2766), which is a modified compound of SEQ ID NO:8, in cultured cells; however, it does not provide any enabled exemplifications wherein the antisense compound comprising any one of the instantly claimed SEQ ID NO:8, or its chemically modified counterparts comprising SEQ ID NOs:77, 78, 79, 151, or 152 inhibits the TRX gene expression *in vivo* to the extent of producing pharmaceutical/therapeutic effects in a living organism.

As neither antisense therapeutics nor clinical trials are performed routinely in the art, to determine whether pharmaceutical compositions comprising SEQ ID NO:8 or variants thereof would effectively treat desired diseases would require undue experimentation. The unpredictable therapeutic effects of DNA-based drugs for therapeutic use are addressed by Patil et al's comprehensive review (*The AAPS Journal,* 2005, 7:E61-E77).

On page E62, Patil et al. teach the complications of using DNA-based drugs as following:

"The innate ability of DNA-based drugs to be internalized by target cells is minimal under normal circumstances. In addition, poor biological stability and a short half-life result in unpredictable pharmacokinetics. Furthermore, DNA molecules that do manage to enter the cell are subsequently subjected to intracellular degradation along with stringently restricted nuclear access. The resulting random delivery profile of DNA-based drugs is further complicated by a lack of in vivo/in vitro correlation of their pharmacological outcomes."

In light of the above, it would have been unpredictable whether the claimed invention would have elicited successful inhibition of TRX function/expression, had the antisense compound comprising SEQ ID NO:8 been administered to an organism *in vivo* at the time the invention was made. In line with the teachings of Patil et al. that a clinical application of DNA-based drugs, such as antisense compounds of the instant application, requires careful series of trial and error tests for ensured success of bioavailability and pharmacokinetics of the DNA-based drugs due to "unpredictable pharmacokinetics" of internalized DNA-based drugs, one skilled in the art would not be able to determine whether the use of the antisense compound comprising SEQ ID NO:8 will result in the therapeutic effect, because the instant specification exemplifies only *in vitro* data.

It is noted, however, that the instant specification discloses enabled *in vivo* exemplifications for the antisense compound comprising SEQ ID NO:14A, which is identified as CUR2681. See Example 17 and Figure 10. As the nucleic acid compositions for SEQ ID NOs:8 and 14 are distinct from each other (SEQ ID NO:8 – CAAGGAATATCACGTT, SEQ ID NO:14 – CTACTACAAGTTTATC), one skilled in the art would not be able to extrapolate the *in vivo* inhibitory effects of SEQ ID NO:8 based on those of SEQ ID NO:14A, given the art-recognized unpredictability of pharmacokinetics of antisense compounds.

In view of the foregoing, the instant disclosure does not provide any guidance required to overcome the art-recognized unpredictability of using DNA-based drugs in therapeutic applications.

In re Vaeck, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991), the Court ruled that a rejection under 35 U.S.C. 112, first paragraph for lack of enablement was appropriate given the relatively incomplete understanding in the biotechnological field involved, and the lack

of a reasonable correlation between the narrow disclosure in the specification and the broad scope of protection sought in the claims. One skilled in the art cannot predict that the claimed pharmaceutical compositions will be effective, if other than the compound known as CUR2681 that is exemplified in the instant specification is administered *in vivo*. It is well known that the art of nucleic acid-based drug discovery for therapy is highly unpredictable as stated above. It is clear that based on the state of the art, in the absence of experimental evidence, no one skilled in the art would accept the assertion that antisense compound comprising SEQ ID NO:8 would be used without undue experimentation.

In light of the above, undue experimentation would have been needed to make and use the claimed invention based on the content of the disclosure (i.e., amount of direction and existence of working examples provided by the inventor) and the state of the prior art, the level of one of ordinary skill, and the level of predictability in the art. In view of all these factors and the totality of the teachings that the activity of DNA-based drugs are unpredictable *in vivo*, undue experimentation would be required of the skilled artisan to practice the instantly claimed invention, thus claims 51-54 are not enabled.

Claims 2, 5-9, 15-16, 48-54, and 91-105 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

To provide evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered

include disclosure of complete or partial structure, physical and /or chemical properties, functional characteristics, structure/function correlation, or any combination thereof.

In the instant case, the breadth of the instantly claimed invention embraces any species of nucleic acid compounds such as antisense oligonucleotides, siRNAs, ribozymes, DNAzymes, aptamers, and so forth, as evidenced by the broad definition of the term "oligomeric compound" provided on page 11 of the instant specification. As broadly claimed, the specification does not clearly allow persons of ordinary skill in the art to recognize that the inventors invented what is claimed in the instant claims because it discloses that the inventors were in possession of no other species of oligonucleotides than LNA antisense oligonucleotides at the time of the instant filing date. Since antisense oligonucleotides disclosed therein are not representative of the genus of nucleic acid compounds (or oligomeric compounds) encompassed by the broadly recited claims, one of ordinary skill in the art cannot recognize what is claimed in claims 2, 5-9, 15-16, 48-54, and 91-105.

Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential species of the genus. An inventor must have a conception of the specific compounds being claimed. See *Fiers v. Revel*, 984 F.2d 1164, 1168, 25 USPQ2d 1601,1604-05 (Fed. Cir. 1993). Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath, Inc. v. Mahurkar, 935 F.2d at 1563, 19 USPQ2d at 1116 (Fed. Cir. 1991), clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (see page 1117). The

specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed" (see page 1116).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 4-9, 14-16, 47-54, and 91-105 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites the limitation "the antisense oligonucleotide" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim because claim 91 does not recite "antisense oligonucleotide".

Regarding claim 16, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 47 recites the limitation "claim 1" in line 1. Since claim 1 has been cancelled, claim 47 depends from a non-existent claim, rendering the claim indefinite. Since the claimed subject matter in claim 47 remains unknown and undefined due to the reasons stated above, the

examiner is precluded from further examining claim 47 on the merits. Accordingly, the recited limitation in claim 48, line 2 "a conjugate as defined in claim 47" will not be considered.

Claim 91, lines 4-5 recite "said sequence has been replaced by a corresponding nucleotide analogue". It is unclear what constitutes the recited "corresponding nucleotide" because the word "corresponding" is a relative term.

Claim 91, lines 1-2 recite "A compound consisting of 12-50 nucleotides and/or nucleotide analogues". As written, it is unclear and ambiguous whether the claimed compound consists of 12-50 nucleotides in addition to 12-50 nucleotide analogues, if "and" is taken into consideration. Further, with regard to "or", it is unclear whether the compound consists only of 12-50 nucleotide analogues without any natural nucleotides, or vice versa. Since the metes and bounds of the claimed invention are not clearly set forth by the claim language, claim 91 and its dependent claims are considered indefinite.

Claim 105 recites the limitation "wherein LNA cytosine is LNA 5' methyl cytosine" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim because not all claims from which the instant claim depends recite the limitation. For example, claims 91-97 neither recite nor make a reference to the limitation "LNA cytosine".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 4-5, 9, 15, 48-54, and 91 are rejected under 35 U.S.C. 102(b) as being anticipated by Wright et al. (WO 99/38963, applicant's Citation No. AH, FORM PTO-1449, filed on July 12, 2004).

The claims are drawn to an antisense compound consisting of 12-50 nucleotides, wherein at least 8 nucleotides are located within the SEQ ID NO:8, comprising nucleotide analogues at different nucleotide positions, wherein the antisense compound is incorporated into a pharmaceutical composition further comprising a pharmaceutically acceptable carrier or salt thereof and further comprising a chemotherapeutic agent.

In the instant case, all claims depend from claim 91, which specifically claims a compound comprising a subsequence of at least 8 nucleotides or nucleotide analogues, located within the sequence set forth in SEQ ID NO:8. Given the broadest reasonable interpretation of the claim, claim 91 reads on any nucleic acid compound comprising any nucleotides selected from those of SEQ ID NO:8 in any sequential order. That is, the instantly claimed invention reads on any nucleic acid compound comprising at least 8 of "C", "A", "G", and "T" set forth in SEQ ID NO:8, which make up to be 12-50 nucleotides in order to fulfill the structural requirements set forth within claim 91. In other words, there is no requirement that the recited "subsequence" must be arranged in a consecutive or contiguous manner.

Wright et al. teach a number of different antisense compounds of 17 to 20 nucleotides in length, which are targeted to thioredoxin mRNA sequence as is the case with the instant application. See Table 1. Each of the 26 antisense oligonucleotide sequences set forth in Table 1

comprises at least 8 nucleotides of SEQ ID NO:8 consisting of "CAAGGAATATCACGTT". They teach that the thioredoxin antisense compounds include non-natural nucleotide analogs and/or phosphorothioate internucleotide linkages for increased nuclease resistance and/or increased uptake into cells (i.e., chemically modified nucleotides). See pages 8 and 14-17. They teach that the thioredoxin antisense oligonucleotides are administered in the form of pharmaceutical compositions, which further comprise pharmaceutically acceptable carriers or excipients of various formulations (pages 29-37). They teach that the pharmaceutical compositions comprising thioredoxin antisense oligonucleotides can further comprise an anticancer drug or a chemotherapeutic agent such as 5-fluorouracil and mitomycin-C (pages 9 and 39). They further teach that the thioredoxin antisense oligonucleotides can be inserted into expression vectors which confer sensitivity to the antiviral gancyclovir for enhanced therapeutic efficacy (page 40). Note that the disclosure of Wright et al. demonstrating pharmaceutical effects (i.e., reduction of tumor size in CD-1 nude mice) is fully enabled unlike the instant disclosure. See for example Figures 6A-6B.

Accordingly, the teachings of Wright et al. satisfy all the limitations set forth by the instantly claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 4-9, 14-16, 51-54, and 91-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. (WO 99/38963) as applied to claims 2, 4-5, 9, 15, 48-54, and 91 above, and further in view of Thrue et al. (US 2004/0096848 A1).

Claims 2, 4-5, 9, 15, 48-54, and 91 are described above.

Claims 6-8, 14, 16, 92-97, and 105 are directed to thioredoxin antisense oligonucleotides comprising LNAs, wherein the antisense oligonucleotides are gapmers and LNA cytosine is LNA 5'methyl cytosine.

Wright et al. teach various structures (length, modifications) of thioredoxin antisense oligonucleotides. They teach therapeutic effects of thioredoxin antisense oligonucleotides in reducing tumor size in nude mice. Wright et al. do not teach LNA modifications or gapmers.

Thrue et al. teach that the LNA analogue is most preferred as the choice of nucleotide analogue substitutions because it displays the ability to penetrate a cell membrane, good resistance to extra- and intracellular nucleases, high affinity and specificity for the nucleic acid target (paragraph 0032). They further teach that beta-D-oxy-LNA is a superb form of nucleotide

analogue because it exhibits unprecedented binding properties towards DNA and RNA target sequences (paragraph 0083). They teach that gapmers are chimeric oligonucleotides composed of beta-D-oxy-LNA and DNA, wherein DNA sequence is flanked by 1 to 6 residues of beta-D-oxy-LNA (paragraph 0096). They also teach that the LNA can be 5' methyl cytosine (paragraph 0056).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the thioredoxin oligonucleotides of Wright et al. in view of Thrue et al. One of ordinary skill in the art would have been motivated to combine the teachings of Wright et al. and Thrue et al. in order to make an effective thioredoxin antisense oligonucleotide compound that displays high affinity and specificity for the thioredoxin target sequence thereby resulting in an efficacious reduction of tumor growth *in vitro* or *in vivo*.

The skilled artisan would have been motivated to incorporate additional nucleotide modifications of Thrue et al., more specifically the beta-D-oxy-LNAs in the form of a gapmer, into the thioredoxin antisense oligonucleotides of Wright et al., because Thrue et al. teach that beta-D-oxy-LNA in the form of a gapmer is the most effective nucleotide analogue and structure in terms of the strength of binding affinity for the target sequence and the accessibility to the target site in target cells. The skilled artisan would have been motivated to combine the teachings of the prior art with a reasonable expectation of success because introducing modifications into nucleotides of antisense oligonucleotides was a routine task of optimization process as taught by Thrue et al. and Wright et al. Accordingly, the instantly claimed invention taken as a whole would have been *prima facie* obvious in view of the combined teachings of the prior art.

Conclusion

No claim is allowed.

Of note on the record, SEQ ID NO:8 appears free of the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Shin whose telephone number is 571-272-8008. The examiner can normally be reached on Monday through Friday, from 8am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached on 571-272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dana Shin
Examiner
Art Unit 1635

TC 1600

JANE ZARA, PH.D.
PRIMARY EXAMINER